

# The Johns Hopkins University Applied Physics Laboratory's Successful Transition from AS9100B to AS9100C

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# APL

JOHNS HOPKINS UNIVERSITY  
Applied Physics Laboratory

# Topics

- About JHU/APL
- Decision to Upgrade from B to C
- Industry-Perceived Areas of Challenge
- Preparing For the AS9100C Audit
- Lessons Learned



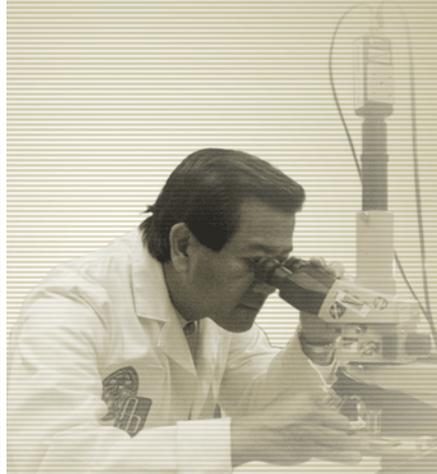
# APL in Brief

## What Are We?



- Division of Johns Hopkins University
- University Affiliated Research Center

## Who Are We?



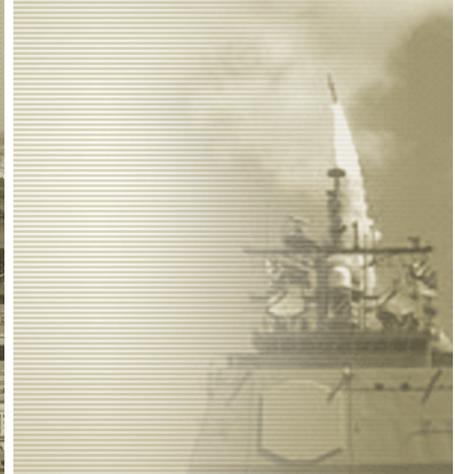
- Technically skilled and operationally oriented
- Objective and independent

## Who Are Our Sponsors?



- DoD
- NASA
- DHS
- IC

## What Is Our Goal?



- Critical Contributions to Critical Challenges

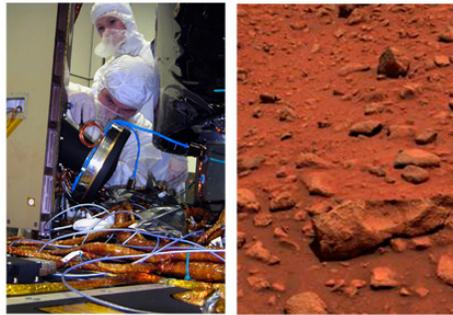


# The Applied Physics Laboratory Space Department

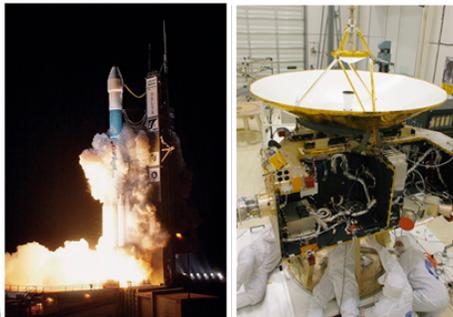


- The APL Space Department has successfully developed and flown over 150 space science instruments since 1970.

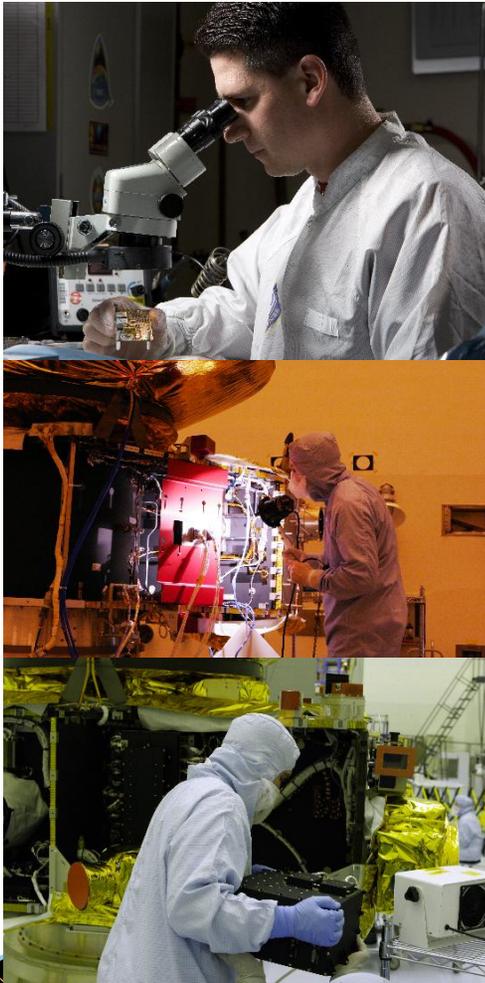
- We have assisted NASA in space exploration from the Sun to Pluto, most recently with the RBSP and Messenger programs



- Currently, the Space Department has over 35 active projects and programs ranging from National Security Space studies of operational concepts to full NASA space missions such as Radiation Belt Storm Probes (RBSP) and Solar Probe Plus (SPP).



# The APL Space Department Mission Assurance Group (SMA)



SMA is responsible for Mission Assurance activities including:

- ❑ Systems Assurance Management
- ❑ Hardware Quality Engineering
- ❑ Software Assurance
- ❑ System Safety Engineering
- ❑ Configuration Management
- ❑ Quality Inspection
- ❑ Supplier Quality Management
- ❑ Internal Audits
- ❑ ESD Compliance and Training
- ❑ Operator and Inspector Workmanship Certification
- ❑ AS9100/ISO Implementation
- ❑ Space Department Staff Training and Certification Records
- ❑ Corrective Action Management and Tracking
- ❑ Metrics Development and Analysis
- ❑ Process Improvement Initiatives



# JHU/APL's Space Department Is Certified To AS9100C

- Certified to AS9100 since Feb 2009
- Decision regarding transition from AS9100B to AS9100C was really a decision to maintain quality and mission assurance leadership in the Space Industry
- Alternatives:
  - Get certified to AS9100C
  - Remain only certified to ISO 9001 or CMMI
  - Drop third party certifications for quality but maintain compliance to a quality standard
- Significant factors in decision:
  - Commitment to Quality and Mission Assurance
  - Independent Verification and Validation of Quality Management System



# Preparing for Upgrade from Revision B to C

- SMA team explored opinions from several registration bodies on standard interpretations.
- Conducted a delta review of the AS9101D (checklist) – identified the areas within the JHU/APL QMS that needed additional attention.
- Reached out to our Lead Auditor and gathered guidance on key areas of concern.
- SMA team member joined the AAQG (Americas Aerospace Quality Group) and participates on the Space Forum and Defense Forum. This was an opportunity to leverage off discussions and experiences of others.



# Industry-Perceived Areas of Challenge

- Significant Changes from AS9100B to AS9100C
  - Risk
  - Critical Items
  - Effectiveness/PEAR (Process Effective Assessment Report)
  - Program Management

APL found these areas to not be significant areas of challenge. We were already focused and in line with the standards.



# Activities Leading up to the Audit

- SMA Lead Internal Auditor attended (and passed) the AATT (Aerospace Auditor Training Transition) class required for certification body auditors. This assisted in the understanding of how the process interactions were audited.
- Discovered what the PEAR required.
  - Reviewed examples from other AAQG member companies
  - Identified 3 key process areas for the Space Department to develop into our PEARS
  - Worked closely with registrar to confirm the direction JHU/APL was taking was correct



# Activities Leading up to the Audit

- Focused our internal audit program on the areas of emphasis from the AS9100C standards:
  - Risk Emphasis – planning, identification, assessment, handling, monitoring, supplier program
  - Effectiveness of processes – not just the conformity



# AS9100C Certification Achieved

- AS9100C certification achieved in Feb 2012
- As always, completing the certification audit was a collaborative effort across the Space Department with help from other APL Departments
- Lessons Learned:
  - APL's transition from AS9100B to C was an evolutionary step forward; not a revolutionary change
  - Especially in challenging financial times, any expenditure is expensive
  - Quality certifications need to have a demonstrated linkage to the organization's bottom line in order to retain management support
  - Organizations need to remain vigilant to guard against bloat in QMS requirements
  - Organizations need to ensure that QMS requirements remain scalable and adaptable to projects of varying cost, complexity, and risk tolerance
  - We need to remember that we are in the business of producing space systems, not quality management system documentation
  - Call to Action – especially during these austere times, the aerospace industry and government sponsors need to agree on a singular standard for space system quality – this would eliminate redundant audit activities and save on project costs

